

**We claim:**

1. A process for preparing a molecular sieve adsorbent for selective adsorption of oxygen from air, the process comprising
  - (i) exchanging zeolite X with water-soluble salt of a rare earth metal selected from the group consisting of cerium, europium, gadolinium and any mixture thereof;
  - (ii) filtering the mixture, washing the powder or pellet with hot distilled water till it is free from anions to obtain an exchanged zeolite;
  - (iii) drying the exchanged zeolite;
  - (iv) and activating the exchanged zeolite.
2. A process as claimed in claim 1 wherein the zeolite X is used in powder form has 100% crystallinity or pellet form.
3. A process as claimed in claim 1 wherein the Na cations of zeolite are exchanged with salts of the rare earth metals selected from chloride, nitrate and acetate
4. A process as claimed in claim 1 wherein the cation exchange is carried at a temperature in the range of 30<sup>0</sup>C to 90<sup>0</sup>C for a period in the range of 4 to 8 hours.
5. A process as claimed in claim 1 wherein the cation exchange is carried out at a cation concentration in the range of 0.01 to 0.1 M solution.
6. A process as claimed in claim 1 wherein the exchanged zeolite is dried in a temperature range of 20<sup>0</sup>C to 80<sup>0</sup>C in air or under vacuum.
7. A process as claimed in claim 1 wherein the exchanged zeolite is activated at the temperature range of 350 to 450<sup>0</sup>C for a period in the range of 3-6 hours followed by cooling under inert or vacuum.